Year 7: Physical World- Forces.

	Check	Date
Revise assumed knowledge: **ST3-6PW** describes how scientific understanding about the sources, transfer and transformation of electricity is related to making decisions about its use **ST3-7PW** uses scientific knowledge about the transfer of light to solve problems that directly affect people's lives	☐	
PW1 Change to an object's motion is caused by unbalanced forces acting on the object. (ACSSU117)		
TYPES OF FORCES		
4PW1a identify changes that take place when particular forces are acting		
Literacy activity (ESL focus): Define and describe. Force	☐	
Provide examples of forces	☐	
CODE: 7PW1 First-Hand Investigation: Measuring forces (Oxford pg306) Use a Newton metre to measure the force required to pull a block of wood or weights over various surfaces	☐	
CODE: 7PW2 First-Hand Investigation: Measuring forces II Compare the force required to drag shoes with different treads across a range of surfaces. Use a blank piece of paper to shade the tread pattern of each shoe for later comparison. Compare grass, road, cement, carpet, lino	☐	
Identifying different forces from your day (Oxford pg307)	☐	
Classify Forces as Contact force (Push, Pull, Friction) OR Field (non-contact) force (Gravity, Magnetic)	☐	
Describe net force	☐	
CODE: 7PW3 First-Hand Investigation: How hard can you push (Oxford pg311)	☐	
Extension: Briefly describe Newtons Laws of Motion	☐	
4PW1b predict the effect of unbalanced forces acting in everyday situations		
CODE: 7PW4 First-Hand Investigation: Student design task (Oxford pg312). Effect of unbalanced force on tennis ball. Focus on experimental design, reliability and graphing	☐	
Predict the effect of unbalanced forces acting in everyday situations eg. skateboarding forces, car accidents	☐	
Draw forces acting upon different objects eg. pushing a car, rollercoaster ride, skydiving.	☐	
4PW1c describe some examples of technological developments that have contributed to finding solutions to reduce the impact of forces in everyday life (e.g. car safety equipment and footwear design)		
Research task or teacher delivered: • Describe some examples of technological developments that have contributed to finding solutions to reduce the impact of forces in everyday life, eg car safety	☐	

equipment (seat belts, airbags), motorcycle and pushbike helmets and footwear design • Compare safety record pre and post introduction		
Extension: Protection from forces (Oxford pg312). Evaluate the compulsory wearing of helmets on bikes and seat belts in cars.	☐	
Review: Characteristics of forces (Oxford pg314)	☐	
4PW1d analyse some everyday common situations where friction operates to oppose motion and produce heat		
Recall the definition of friction	☐	
Construct a table providing everyday examples of where friction is beneficial and detrimental	☐	
Identify ways to reduce friction: Reduce contact, Lubricant	☐	
CODE: 7PW5 First-Hand Investigation: Effect of lubricant on friction (Oxford pg316). Carry out a range of normal activities ± baby oil. Compare.	☐	
Extension: Watch a youtube video of professional team cyclists slipstreaming. Explain (Oxford pg312).	☐	
CODE: 7PW6 First-Hand Investigation: Reducing friction (Oxford pg317).	☐	
Discuss factors that influence the size and effect of frictional forces	☐	
Review: Friction (Oxford pg314)	☐	
Literacy: COSMOS. The Science behind Superheroes by Tim Dean**:** Issue 6 pg59. Read, review article and answer questions provided **OR** students research for another related article. Students then write a series of questions that MUST include 5 multiple choice, 2 identify, 2 describe, 1 explain and 1 evaluate or analyse.	☐	
Assessment: Oxford online test- Types of forces Students to achieve 100% in: Support and Consolidate **OR** Consolidate and Extend	☐	
PW2 The action of forces that act at a distance may be observed and related to everyday situations.		
GRAVITY AS A FORCE		
4PW2a.use the term 'field' in describing forces acting at a distance		
Literacy activity (ESL focus): Define and describe. non-contact force, field, magnetic, gravity, electrical, mass and weight	☐	
Recall definition of non-contact forces	☐	
4PW2e. identify that the Earth's gravity pulls objects towards the centre of the Earth (ACSSU118)		
Describe gravity as a force of attraction between any objects with mass.	☐	
Describe gravitational field as area around object that attracts anything that has mass.	☐	
Describe the factors that influence gravitational field; size and distance.	☐	
4PW2f. describe everyday situations where gravity acts as an unbalanced force		
Describe the effect of gravity on a ball thrown up in the air. On the way up, at the top and on the way down	☐	
Extension: Do all objects fall at same rate. Youtube moon video of astronaut dropping hammer and feather. Explain observation.	☐	

4PW2g. distinguish between the terms 'mass' and 'weight'		
Distinguish between the terms 'mass' and 'weight'	☐	
Numeracy and first-hand investigation: Mass v's weight (Oxford pg323). Compare the mass and weight of an average person on each of the planets in our solar system. Explain results.	☐	
Literacy activity (ESL focus): Define and describe. Buoyancy	☐	
Describe the relationship between buoyancy and gravity. Why does a rock sink in water and a ping-pong ball float.	☐	
Assessment: Oxford online test- Gravity as a force Students to achieve 100% in Support and Consolidate **OR** Consolidate and Extend	☐	
8.3 Magnetism and electrostatic forces		
MAGNETISM AND ELECTROMAGNETIC FORCES		
4PW2h. describe the behaviour of magnetic poles when they are brought close together		
Literacy activity (ESL focus): Define and describe. magnetic forces, alloy, magnetic pole	☐	
Identify magnetic metals: Iron, Cobalt, Nickel	☐	
Describe magnetic poles; like poles repel, opposite poles attract	☐	
CODE: 7PW7 First-Hand Investigation: Investigating magnets (Oxford pg327). Magnets and iron filings. Draw the fields that appear	☐	
Describe an electromagnet as a type of magnet that can be turned on and off.	☐	
4PW2i. investigate how magnets and electromagnets are used in some everyday devices or technologies used in everyday life		
Research task or teacher delivered: investigate how magnets and electromagnets are used in some everyday devices or technologies used in everyday life • Describe how an MRI scan is performed using electromagnets • Find directions with a compass and discuss how they have contributed to society	☐	
CODE: 7PW8 First-Hand Investigation: Making an electromagnet (Oxford pg329).	☐	
Review: Magnetic materials (Oxford pg330)	☐	
Briefly describe geomagnetism: how Earth acts as a giant magnet	☐	
CODE: 7PW9 First-Hand Investigation: Mapping magnetic fields (Oxford pg333).	☐	
4PW2b.identify ways in which objects acquire electrostatic charge		
Literacy activity (ESL focus): Define and describe. electrostatic forces	☐	
Distinguish between electrostatic charge and current electricity	☐	
4PW2c. describe the behaviour of charged objects when they are brought close to each other		
Describe the behaviour of charged objects when they are brought close to each other: like charges repel, opposite charges attract	☐	
How can objects acquire electrostatic force?	☐	

List examples of electrostatic forces	☐	
CODE: 7PW10 First-Hand Investigation: Electrostatic forces Conduct a range of experiments to demonstrate the effect of electrostatic forces: Balloon and hair or wall and Ebonyi and Perspex rods with water from tap or paper	☐	
CODE: 7PW11 First-Hand Investigation: Investigating charge behaviour (Oxford pg336). Roll of sticky tape	☐	
4PW2d. investigate everyday situations where the effects of electrostatic forces can be observed, eg lightning strikes during severe weather and dust storms		
Research task or teacher delivered: • Describe everyday situations where effects of electrostatic forces can be observed such as lightning strikes during severe weather, volcanic eruptions and dust storms	☐	
Assessment: Oxford online test- Magnetism and electrostatic forces Students to achieve 100% in Support and Consolidate **OR** Consolidate and Extend	☐	
4PWadd1 investigate characteristics of specific forces in terms of size and direction		
Research task: Investigate characteristics of specific forces in terms of size and direction	☐	
4PWadd7 research current ideas about the Earth's magnetic field and its effects		
Research task: Research current ideas about the Earth's magnetic field and its effects	☐	
Comments and Suggested improvements **Name:** **Signature:** **Date:**		